Influence of Slag, especially of AlO and TiO in Slag upon the Structure and Mechanical Properties of Cast Iron. (VI)

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alike to AgCl and the peak of hardness alteration by annealing, abnormal hardening was measured, at 100°C and 200°C after 15 minutes from the start of annealing but not measured at 300°C. Also as for AgBr such hardening existed after 15 min. at 100°C.

Applying X-ray Laue method, photographs showed that AgCl and AgBr foils had fibre structure whose axis <110> was parallel to the direction of rolling and recrystallization phenomenon existed in such ionic crystals, and that such an phenomenon begins at 100°C for 120 min. for AgCl and at room temperature for 3 days for AgBr. On the basis of the fact that three samples annealed, at 100°C. 240 min., 125°C. 30 min., 150°C. 3 min., respectively, resembled to each other with respect to the distribution of Laue spots by recrystallization, which are of the same order, and having an equal residual fiber structure, the activation energy of recrystallization was calculated to be 27500 col/mol.

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14. Influence of Slag, especially of Al_2O_3 and TiO_2 in Slag upon the Structure and Mechanical Properties of Cast Iron. (VI)

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The gray cast iron was melted under the slag of SiO_2-CaO-Al_2O_3-TiO_2 system (TiO_2: 0–12%) at 1400°C., and the sample cooled in air with carbon crucible. (This Bulletin, **23**, Dec., (1950)).

CaO/SiO_2 ratio of the used slags was 0.5, 1 and 1.5 respectively, the contents of TiO_2 in each slag being from 0 to 12%.

(1) The titanium content in gray cast iron has increased in accordance with the increase of titanium oxide in the slag; the maximum percent in our research reached about 0.24% titanium.

(2) Nitrogen contained in gray cast iron showed no remarkable change by the increase of the above titanium.

(3) The flaky graphite carbon of original pig iron were found to become finer in our experiments.

We found that the cast iron of a fine eutectic graphite carbon structure, completely and uniformly homogeneous, was usually obtainable when the common pig iron was melted under the slag of SiO_2-CaO-Al_2O_3-TiO_2 system (TiO_2: about 10%) and with the CaO/SiO_2 ratio 1.5 at the experimental condition already described.
